CASIO
DIGITAL HORN
DH-100

CASIO

Casio DH-100 Digital Horn Player's Manual

Congratulations on your purchase of the Casio DH-100 Digital Horn. Your new DH-100 is a whole new type of musical instrument which can be enjoyed by virtually anyone, anytime and anywhere. To obtain optimum performance and ensure long-term reliability, be sure to read this manual carefully before playing your new Digital Horn.

Main Features

Preset Reed/Brass Tones

The DH-100 lets you choose from any of 6 ultra-realistic horn sounds, including saxophone, trumpet, synth-reed, oboe, clarinet and flute.

High-quality Built-in Speaker

With a high-quality speaker built right into the DH-100 and battery power, you're free to perform or practice virtually anywhere! Pack it along for portable music fun, or make use of the AD-1 AC adaptor and save on batteries.

Portamento Effect

Add even greater realism to your sound with the built-in portamento effect. This creates a "gliding" effect, for natural, "horn-like" transition between notes.

2-Octave Key Transpose

A built-in key transpose function lets you raise or lower the performance key for even greater sound variation. For example, choose a higher octave for soprano sax, then just move the octave down for baritone sax sound.

Breath Modes and Two-way Fingering

Unlike a normal wind instrument, the DH-100 lets you choose whether or not you want to "blow" to perform. Turn the breath mode ON and you blow just like a normal horn, but turn it OFF and sounds can be produced just by fingering the note keys! What's more, there's two different fingering patterns - one's the same as a recorder and the other is a unique Casio original.

MIDI Output

The DH-1000 is equipped with MIDI - the Musical Instrument Digital Interface, that gives you DH-100 control of other MIDI instruments or sound sources. For example, connect the DH-100 to a Casio digital synthesizer and virtually limitless digital sounds are at your control.

Contents

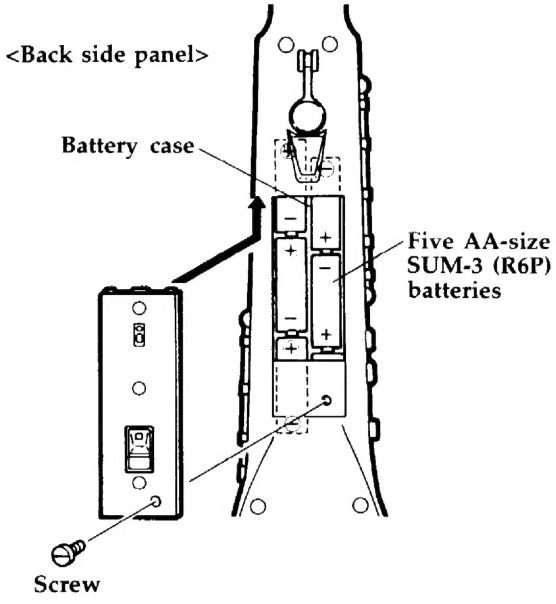
Supplying Power to Your DH-100

For total portability, the DH-100 is designed so that you can power it by using 5 AA-size dry cell batteries, or by using standard household current through an optional AD-1 AC adaptor. You can also make use of car battery power by using CASIO's optional CA-1 car adaptor.

Inserting and Replacing Batteries

Before inserting or replacing batteries, make sure that the DH-100 is turned OFF. Remove the battery compartment cover by removing the screw holding it in place and insert batteries, taking care the polarity (+/-) is correct. When replacing batteries, be sure to replace all five to ensure long battery life.

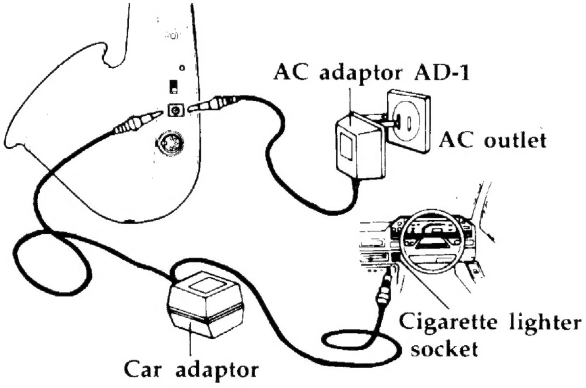
- *Battery life of high-performance AA dry cells is approximately 6 hours. Weakened batteries will cause the power indicator to lose its brightness and result in lower volume, poor tonal quality and eventually malfunction. If such symptoms occur, replace all five batteries with new ones as soon as possible.*



Connecting an AC Adaptor

By connecting an optional AD-1 AC adaptor, you can power the DH-100 with standard household current. Be sure to use only a genuine Casio AD-1 adaptor with the same voltage rating as your local power supply, to prevent malfunction or damage to the DH-100.

<DH-100 terminals>



Connecting a Car Adaptor

By connecting an optional CA-1 car adaptor to a car cigarette lighter, you can power the DH-100 with auto battery current. Be sure to use only a genuine Casio CA-1 adaptor.

Important

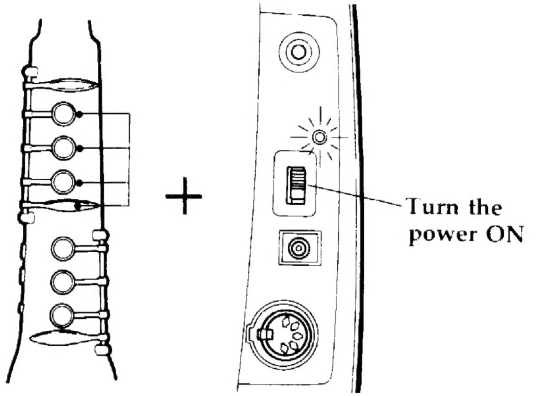
- Always make sure that the DH-100 is turned OFF before connecting or disconnecting adaptors.
- Remove batteries from the battery compartment when the unit is not in use for extended periods. Battery leakage can damage internal components.
- Adaptors normally become warm when connected to the power source. This is not cause for worry, however adaptors should be disconnected whenever the unit is not used for extended periods.
- The following conditions can cause batteries to burst:
  - ☞ Use of other than genuine CASIO adaptors.
  - ☞ Loading batteries with polarities reversed
  - ☞ Use of batteries of different types.
  - ☞ Mixing old and new batteries.
  - ☞ Attempting to recharge non-rechargeable batteries.
  - ☞ Exposing batteries to extremely high temperatures.

Auto Power OFF Function

To preserve power, the DH-100 will shut OFF automatically approximately 6 minutes after the last operation of the unit. Normal operation can be restored by first turning the power switch OFF and then ON again.

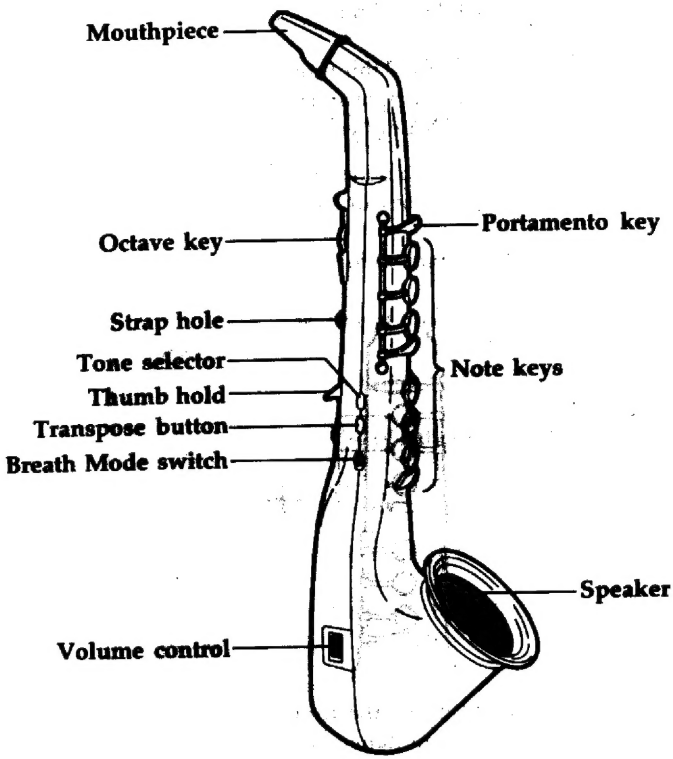
You can cancel this function by holding down the four keys shown to the right and turning power ON. The unit will then remain ON until you turn it OFF.

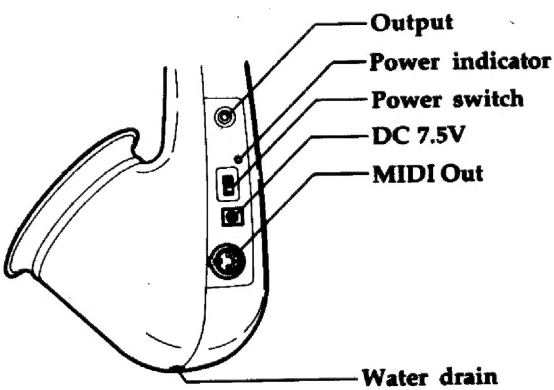
- *Note that if you press any other key along with the four shown at right, Auto Power OFF function will not be cancelled.*



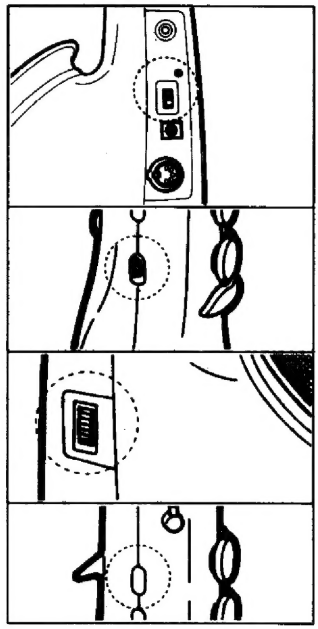
Hold down the four keys simultaneously

General Guide





The Basics: How to Make Music on the DH-100



1. Supply power to the DH-100.

2. Turn the DH-100 power switch ON.
   An indicator above the switch lights

3. Select the "Breath Mode" you want to use.
   - *To play the horn by actually blowing through the mouthpiece, set the Breath Mode switch to the ON position.*
   - *To play the horn without blowing, set the Breath Mode switch to the OFF position. (See page 8.)*

4. Adjust to an appropriate volume level with the volume control.

5. Select a preset tone.
   When DH-100 power is turned ON, the SAXOPHONE tone is selected automatically. To choose other tones, simply press the Tone Selector (see page 9).

6. Play the DH-100 using either standard recorder fingering or Casio's original finger pattern (see page 11).

Initialized Settings

When DH-100 power is turned ON, it is set up to operate a certain way. The settings that are selected automatically are known as *initialized* settings. These respective settings are shown in the chart below.

Initialized Settings

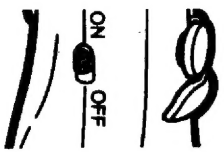
TONE	Saxophone
TRANSPOSE	C4
FINGERING PATTERN	Recorder
AUTO POWER OFF FUNCTION	On

DH-100
Breath Modes

Unlike a conventional wind instrument, the DH-100 lets you choose whether or not you want to "blow" to produce sound

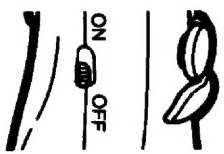
Breath Mode ON

When the Breath Mode switch located on the right-side control panel of the horn is turned ON, no sound can be produced without blowing through the mouthpiece in the same way you would play a conventional horn.



Breath Mode OFF

When the Breath Mode switch located on the right-side control panel of the horn is turned OFF, sound can be produced by simply fingering the keys in the same way you would a conventional horn. There is no need to blow through the mouthpiece in this mode. This mode can be extremely useful, especially when using the DH-100 to practice fingering patterns.



- *Note that when the breath mode is OFF, changes in dynamics cannot be made using the mouthpiece.*

- *When standard recorder fingering is selected and the Breath Mode switch is set to the ON position, note keys must be pressed to produce notes (see the Fingering Chart accompanying this manual).*

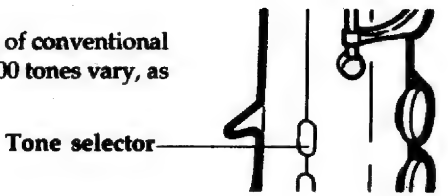
Preset Tones

The DH-100 features 6 preset horn tones which can be selected by pressing the Tone Selector. Each of these horn sounds features a preset delayed vibrato effect.

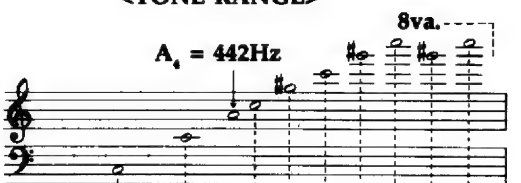
When power is turned ON, the SAXOPHONE tone is selected. Succeeding sounds can be selected by pressing the Tone Selector; press once to select the TRUMPET tone, twice to select SYNTH-REED, etc.

DH-100 Tone Ranges

In order to faithfully reproduce the sounds of conventional wind instruments, the pitch range of DH-100 tones vary, as shown in the chart at the right.



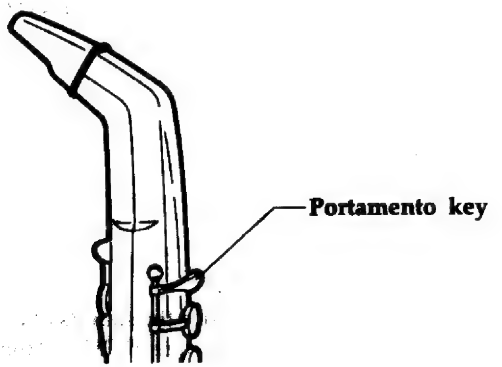
<TONE RANGE>



<Tone>	<Fingering>
Saxophone	Recorder
	Casio original
Trumpet Synth-Reed Oboe Clarinet	Recorder
	Casio original
Flute	Recorder
	Casio original

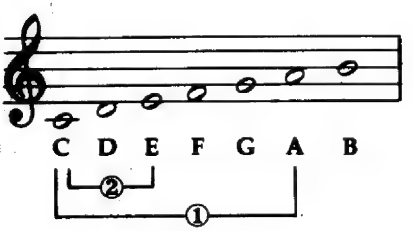
Portamento Effect

The DH-100's built-in portamento effect adds realism to your sound by creating a "gliding" effect between notes, for natural, "horn-like" transition.



To add portamento, simply hold down the Portamento key at the upper end of the horn. Naturally, portamento glide time will depend on note intervals.

For example, it takes longer to glide from C up to A (FIG-1) than to glide from C up to E (FIG-2), as the interval between C and A is greater.



Fingering Patterns

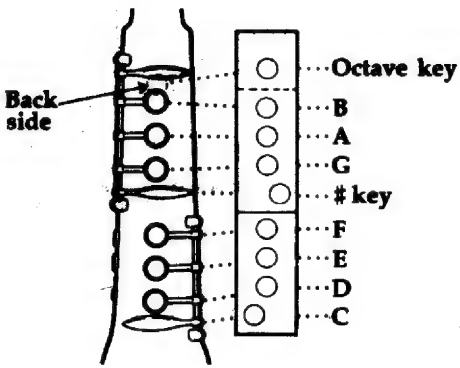
Unlike a conventional wind instrument, the DH-100 lets you choose between two different fingering patterns. The standard pattern is the same as that used to play a recorder, while the second is a Casio original.

For details on how to produce notes using these patterns, refer to the Fingering Chart which accompanies this manual.

Recorder Fingering

This system is based on standard recorder fingering, however a sharp (#) key is provided to raise natural tones chromatically (see figure to right).

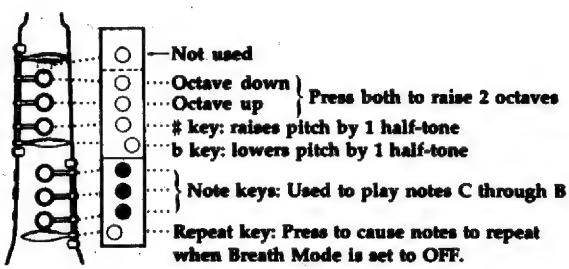
To raise the octave, simply press the octave key on the back side of the horn. The range of this fingering system is 2.5 octaves and is illustrated in detail in the Fingering Chart which accompanies this manual.



Casio Fingering

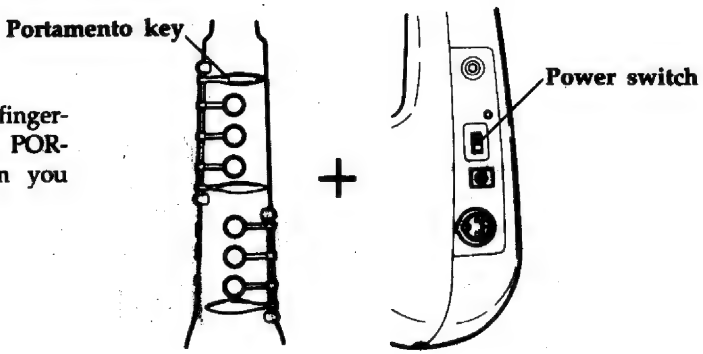
This original fingering system is organized so that even total wind-instrument beginners can master the DH-100 with ease. An entire scale - from C to B - can be played by using only 3 keys. With the use of other keys, you can also raise or lower octaves and add sharps and flats.

The range of this fingering system is 4 octaves, as shown in the Fingering Chart which accompanies this manual.



To change fingering

When the DH-100 is turned ON, normal fingering is automatically selected.



- To select Casio original fingering, hold down the PORTAMENTO key when you turn power ON.

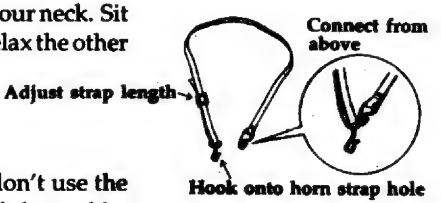
- To return to normal recorder fingering, simply turn the power OFF and then ON again, without holding down the PORTAMENTO key.

DH-100 Performance Tips

Your DH-100 is a wind instrument with built-in digital sounds. By using correct playing techniques, you can play true horn sounds that rival acoustic wind instruments for beauty and clarity. Be sure to study and observe the following tips on performance to improve your playing technique.

1. Correct Posture

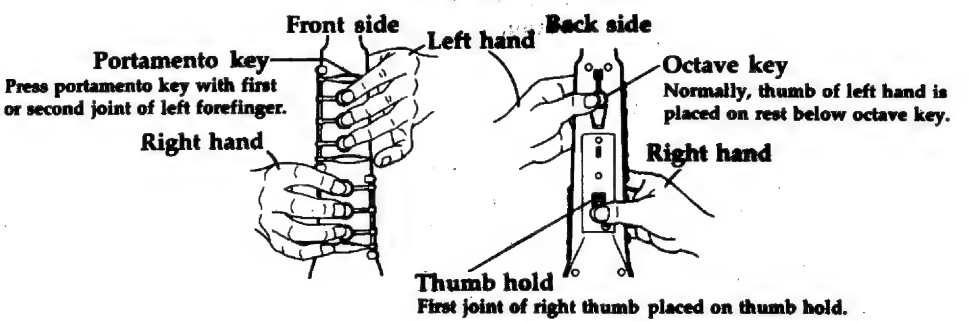
Adjust the length of the strap and put it around your neck. Sit or stand with your back straight, but be sure to relax the other parts of your body.



2. Correct Finger Positioning

You'll find it hard to play the DH-100 if you don't use the correct finger positions. Bend your fingers slightly, and be sure to keep them relaxed so they can move freely.

<Correct finger positioning>



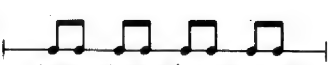
3. Vary Air Flow Strength

The characteristics of DH-100 sound will vary with the strength with which you blow on the mouthpiece (when breath mode switch is ON). Blow relatively softly for normal play, blowing harder to add emphasis.

4. Staccato Play Using Your Tongue

You can sharpen your sound by adding staccato sounds with your tongue (when the breath mode switch is ON). Try placing your tongue at the roof of your mouth against your teeth and imagine you are saying "to" or "do" as you play.

For a quick staccato effect try forming the sounds "to" and "coo" (as in "cool") in rapid succession, as shown to the right. This is commonly known as "double-tonguing."



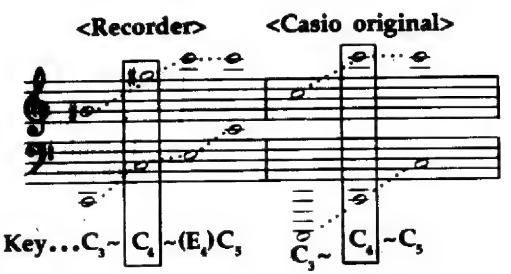
Transpose Function

The DH-100 features a "transpose" function that lets y raise or lower the key of performance chromatically.

When DH-100 power is turned ON, the performance key is set with "C" equal to center C on a piano (C4).

Each time the transpose button is pressed the key is raised in half-step increments up to C5.

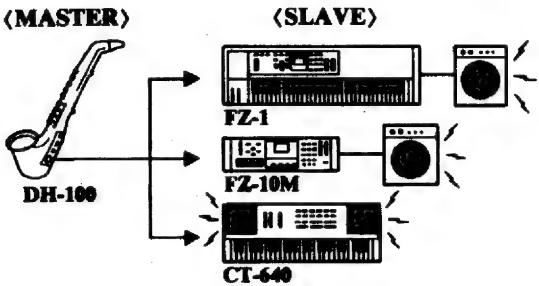
If the button is pressed once again after it reaches C5, the key reverts to C3. Subsequently pressing the Transpose button will once again raise the key in half-step increments.



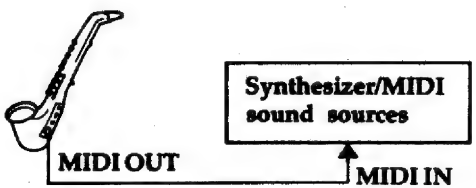
- *If you have transposed the DH-100 into another key, lost track of what key you are in and want to get back to "home base" (C4) quickly, simply turn the DH-100 off and then back on again to initialize.*

MIDI

The DH-100 is equipped with MIDI - the Musical Instrument Digital Interface. This industry-standard interface lets you connect the DH-100 with other MIDI-equipped electronic instruments and devices, allowing remote control.



More specifically, the DH-100 features a MIDI OUT terminal, which lets you use the DH-100 to control other sound sources, such as synthesizers.



Notes on MIDI Performance

The DH-100 outputs basic MIDI messages, as listed in the MIDI implementation chart which accompanies this manual.

- *MIDI note numbers shift up or down in accordance with setting of key transpose function.*

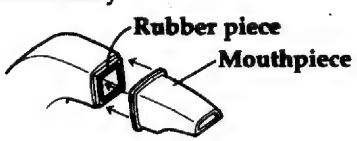
For further information on output MIDI messages, refer to the MIDI implementation chart accompanying this manual.

Care of Your Digital Horn

- Avoid exposing the DH-100 to extremes of temperature, excessive humidity and direct sunlight.
- Your DH-100 features precision electronic components. Any modification of, or tampering with internal parts can be the cause of malfunctions or damage.
- Avoid playing the DH-100 immediately after eating. First be sure to rinse out your mouth to prevent the possibility of foreign matter entering the horn.
- Never turn the power switch ON while blowing through the mouthpiece.
- Do not use excessive force on the keys.
- Do not use alcohol, thinner or similar chemicals for cleaning.
- Be sure that the screws holding the battery case cover are secured tightbefore connecting the strap.
- Never use excessive force on the strap.

To clean the mouthpiece

- When the mouthpiece becomes dirty, remove it and soak it in a neutral cleaner.
- The rubber piece which holds the mouthpiece in place cannot be removed, but you can clean it with a cotton swab. Do not insert the swab too far into the horn. Doing so may damage internal components.
- Before replacing the mouthpiece, be sure to wipe it thoroughly dry. When replacing it, take care not to remove the rubber piece which holds it in place. Make sure that the mouthpiece is firmly in place. Gaps may cause the horn to sound abnormally.



Specifications

Preset tones	Saxophone, Trumpet, Synth-Reed, Oboe, Clarinet, Flute
Polyphony	Monophonic
Effects	Delayed vibrato (preset), Portamento
Fingering	Recorder fingering (2.5-octave range) Casio original fingering (4-octave range)
Transpose	±1 octave, chromatic
Breath modes	ON / OFF
MIDI OUT	Note ON/OFF, Program change, Basic channel (1), Velocity (1-127), After touch
Tuning	A4 = 442Hz
Terminals	MIDI out, DC7.5V, Output
Power	AC: 100, 117, 220 or 240V (+/-10V), 50/60HZ, with optional Casio AD-1 AC adaptor DC: 5 AA-size (SUM-3/R6P) manganese dry batteries Battery life: approx. 6 hrs. Car battery: Powered by car battery using optional Casio CA-1 car adaptor *(Not available in United States)*
Output	Output impedance = 70Ω Output voltage = 0.16V (RMS) max.
Power consumption	2.7W
Built-in speaker	9.0 x 5.0cm (oval) x 1 Output = 2.0W
Auto Power OFF	After 6 minutes, ON/OFF
Dimensions	100(W) x 520(H) x 185(D)mm (3 15/16"(W) x 20 1/2"(H) x 7 5/16"(D))
Weight	0.8 kg (1.8 lbs) including batteries
Standard accessories	Strap, mouthpiece x 2, batteries

* *Design and specifications are subject to change without notice*

GUIDELINES LAID DOWN BY FCC RULES FOR USE OF THE UNIT IN THE U.S.A. (not applicable to other areas).

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

..... reorient the receiving antenna

..... relocate the computer with respect to the receiver

..... move the computer away from the receiver

..... plug the computer into a different outlet so that computer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the US Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

CASIO DIGITAL HORN

Model DH-100 **MIDI Implementation Chart**

Version : 1.0

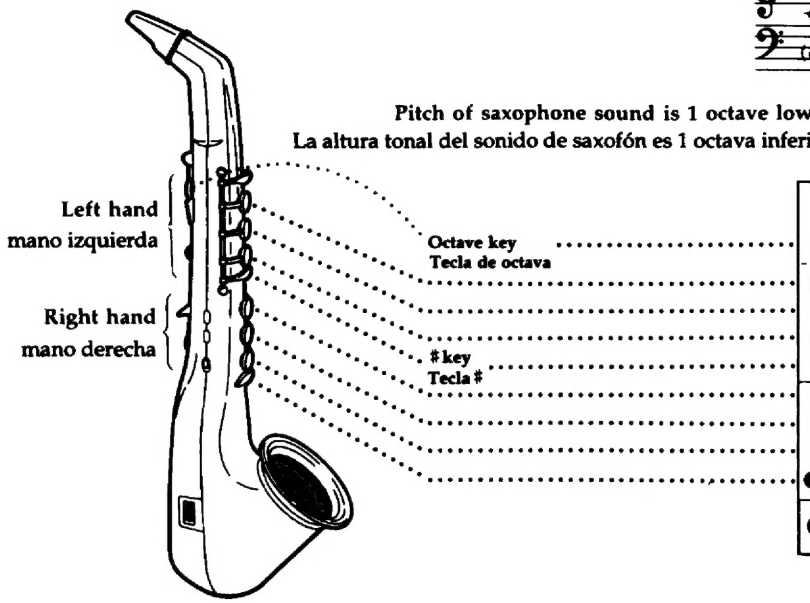
Function ...		Transmitted	Recognized	Remarks
Basic Channel	Default	1		
	Changed	×		
Mode	Default	Mode 3		
	Messages	×		
	Altered	**********		
Note Number:	True voice	36-39 **********		Recorder fingering: 48-96
Velocity	Note ON	○ 9n v=1-127		
	Note OFF	○ 9n v=0		
After Touch	Key's	×		
	Ch's	○		
Pitch Bender		×		
Control Change	65	○		PORTAMENTO ON/OFF
Prog Change:	True #	○ 0-5 **********		
System Exclusive		×		
System Common	: Song Pos	×		
	: Song Sel	×		
	: Tune	×		
System Real Time	: Clock	×		
	: Commands	×		
Aux Mes-sages	: Local ON/OFF	×		
	: All notes OFF	×		
	: Active Sense	×		
	: Reset	×		
Remarks				

Mode 1 : OMNI ON, POLY
Mode 2 : OMNI ON, MONO
Mode 3 : OMNI OFF, POLY
Mode 4 : OMNI OFF, MONO

○ : Yes
× : No

Recorder Fingering Guide
Guia de digitación de flauta dulce

(TRANSPOSE = C)



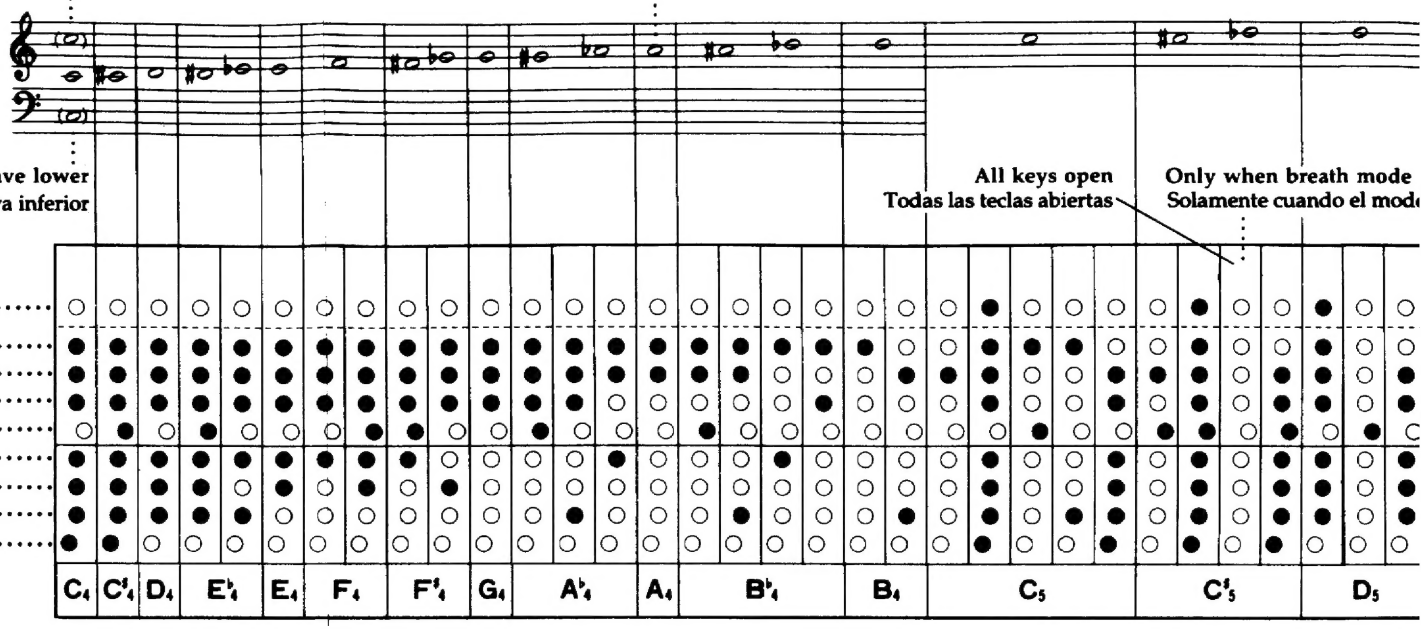
Pitch of flute sound is 1 octave higher
La altura tonal del sonido de la flauta es 1 octava superior

A4=442Hz

Pitch of saxophone sound is 1 octave lower
La altura tonal del sonido de saxofón es 1 octava inferior

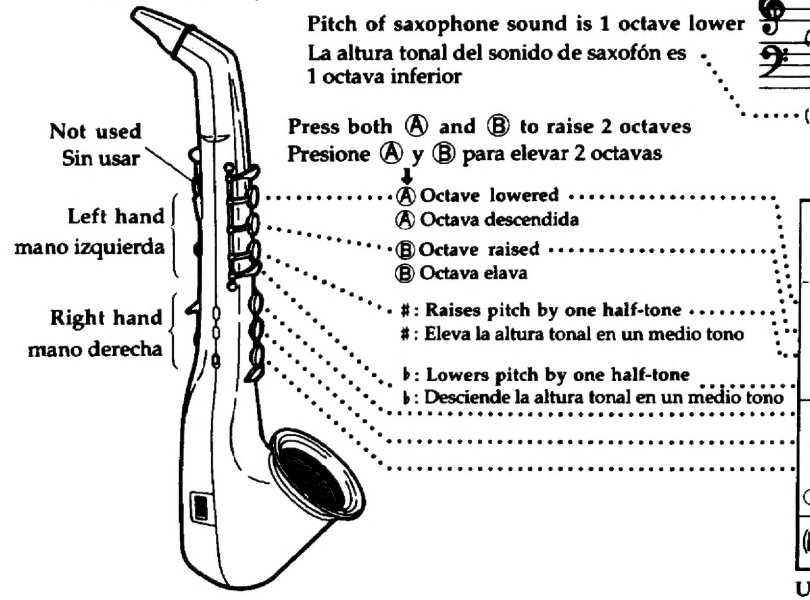
All keys open
Todas las teclas abiertas

Only when breath mode
Solamente cuando el mod



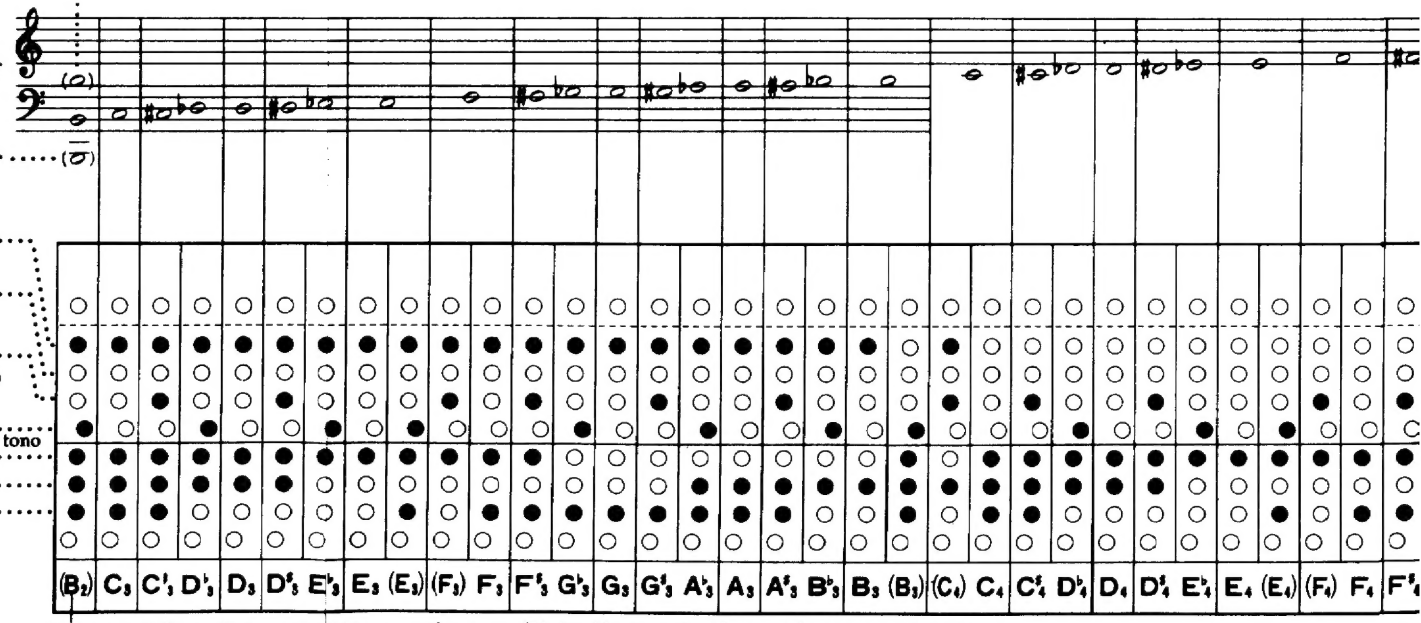
Casio Original Fingering Guide
Guia de digitación original de Casio

(TRANSPOSE = C)

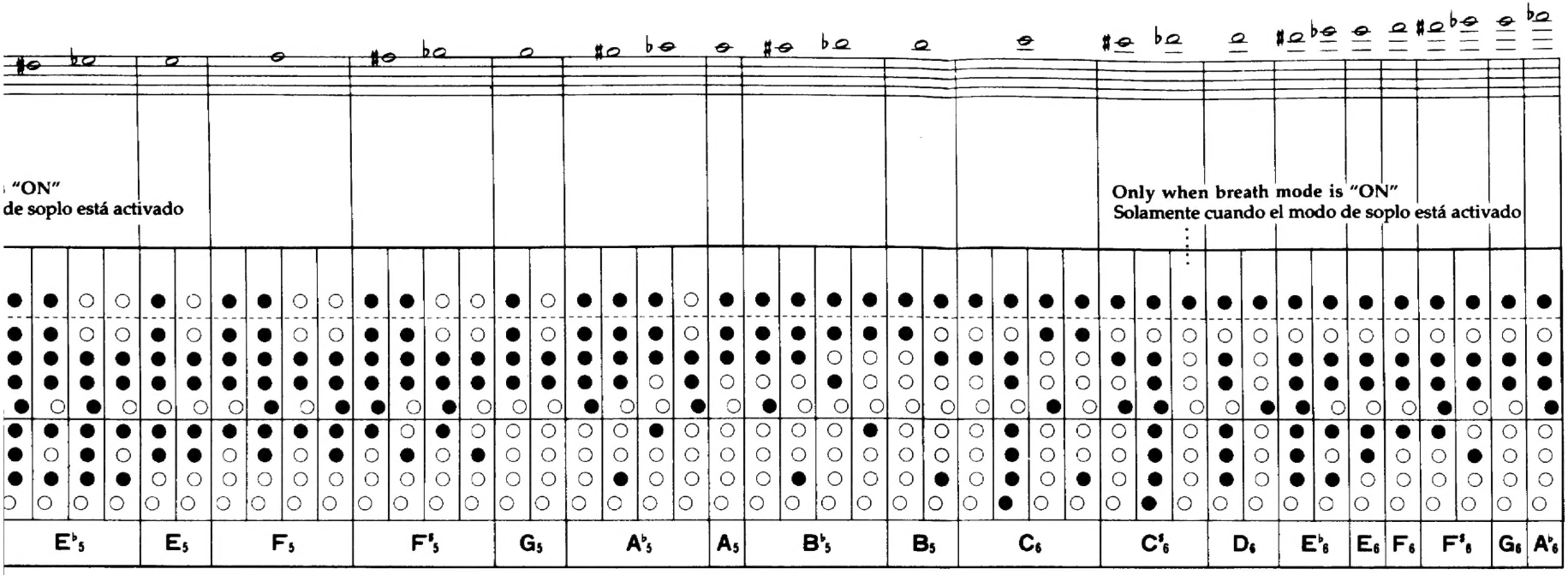


Pitch of flute sound is 1 octave higher
La altura tonal del sonido de la flauta es 1 octava superior

Pitch of saxophone sound is 1 octave lower
La altura tonal del sonido de saxofón es
1 octava inferior



Unnatural fingering marked in parentheses Digitación no natural marcada entre paréntesis



○ = Released
● = Depressed

○ = liberado
● = presionado

Although there are many possible fingering variations, this chart shows only the standard fingering patterns.

Aunque existen muchas posibles variaciones de digitación, este cuadro muestra solamente el patrón de digitación normal.